What Is Claimed Is:

1. A method for detecting a phase of a four-stroke gasoline engine in which in a starting phase, a crankshaft is turned together with at least one piston,
ignition is triggered via an ignition coil without supply of fuel at at least two successive top dead centers (I-TDC, CC-TDC) of the piston,
a primary current or a primary voltage of a primary circuit or a secondary current or a secondary voltage of a secondary circuit is measured in a measuring period which extends at least over a spark duration (t-BR-I-TDC, t-BR-CC-TDC) after the ignition, and
a conclusion is drawn from the comparison of the measurements of the successive top dead centers as to which of the top dead centers is an ignition top dead center (I-TDC) between the compression stroke and the power stroke and which is a charge cycle top dead center (CC-TDC) between the exhaust stroke and the intake stroke.

2. The method as recited in Claim 1,
wherein the measurement identifying a shorter spark duration (t-BR-I-TDC) is assigned to the ignition top dead center (I-TDC).

3. The method as recited in one of the preceding claims,
wherein the spark duration is identified as the time period after the ignition in which a primary voltage measured value or a secondary voltage measured value or a primary current measured valve or a secondary current measured valve exceeds a reference value.

4. The method as recited in one of the preceding claims,

wherein, within the measuring period, a primary voltage (U1) induced across the primary winding of the ignition coil or a primary reference voltage (U_{R1}) formed from the primary voltage (U1) via a voltage divider circuit (R1, R2) is compared with a first reference voltage (URef1), and a spark duration signal (t-BR1) is output as a function of this comparison.

5. The method as recited in Claim 4, wherein the first reference voltage (URef1) is between the voltage values of the primary reference voltage (U_{R1}) during the spark duration of a charge cycle top dead center (t-BR-CC-TDC) and a static voltage (U_N) after the spark durations (t-BR-I-TDC, t-BR-CC-TDC).

6. The method as recited in one of Claims 1 through 3, wherein a secondary current is determined, preferably by measuring a secondary voltage (U2) drop across a shunt resistor (RM) which is connected in series to the secondary winding and the spark plug (8).

7. The method as recited in Claim 6, wherein the secondary voltages (U2) measured at the top dead centers (I-TDC, CC-TDC) are compared with a second reference voltage (URef2), and a spark duration signal (t-BR2) is output as a function of this comparison.

8. The method as recited in one of the preceding claims, wherein the spark duration signal (t-BR-1, t-BR-2) is output as a function of the measured value and a control signal (a) of the ignition transistor.

9. The method as recited in one of the preceding claims, wherein the phase of a gasoline direct injection engine is determined.

10. The method as recited in one of the preceding claims, wherein an ignition top dead center (I-TDC) is determined in multiple cylinders.

11. A method for igniting a four-stroke gasoline engine, a gasoline direct injection engine in particular, in which
a phase of the engine and of the crankshaft rotation is determined using a method as recited in one of the preceding claims, and correct injection and ignition subsequently take place according to the phase without interruption of the crankshaft rotation.

12. A device for detecting a phase of a four-stroke gasoline engine, comprising a primary circuit, a secondary circuit, an ignition coil, a spark plug, and an ignition transistor, the device having:
a measuring device (12, 13, R1, R2; RM) for measuring a primary voltage or a secondary voltage, or a primary current or a secondary current during the crankshaft rotation at the times of successive top dead centers of a piston in a measuring period which extends at least over a spark duration (t-BR-I-TDC, t-BR-CC-TDC) after the ignition, and outputting of a measuring signal,
an analyzing device (16, 18) for picking up the measuring signal of the measuring device and outputting a spark duration signal (t-BR1, t-BR2), and
a comparison device for comparing the spark duration signals of the analyzing device.

13. The device as recited in Claim 12,
wherein the measuring device is a primary voltage measuring device (12, 13, R1, R2) for measuring a primary voltage (U1) induced by the secondary current.

14. The device as recited in Claim 14,
wherein the measuring device has a comparison means, preferably an operational amplifier (12) or comparator, whose inputs are connected to the primary winding terminals of the ignition coil (2) via voltage-setting means, preferably a reference voltage circuit (13) and a voltage divider circuit (R1, R2).

15. The device as recited in Claim 14,
wherein the measuring device is a secondary current measuring device which has a resistor (RM) which, in the secondary circuit (6), is connected in series with the secondary winding of the ignition coil (2) and the spark plug (8), the analyzing device (18) picking up a secondary voltage (U2) drop across the shunt resistor (RM), as the measuring signal.

16. The device as recited in one of Claims 12 through 15,
wherein the analyzing device (16, 18) picks up the measuring signal of the measuring device (12, 13, R1, R2; RM) and a control signal (a) of the ignition transistor (3) and, as a function thereof, outputs the spark duration signal (t-BR1, t-BR2) to the comparison device.

17. The device as recited in Claim 16,
wherein the comparison device has a memory element for intermediate storage of at least one spark duration signal (t-BR1, t-BR2) of one measurement for comparison with the spark duration signal of the subsequent measurement.